FORMAT

TITLE OF ABSTRACT: Evaluation of changes of Mean Arterial pressure measured by non invasive oscillometric readings (NIBP) with passive leg raise as an index of fluid responsiveness in patients with shock

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OBJECTIVES:

1 .a) To determine the sensitivity and specificity of non invasive Mean arterial pressure change (MAP) with passive leg raise (PLR) compared against a gold standard of more than or equal to 15 % increase in stroke volume.

b) To determine MAP change with best cut –off

2. a) To determine the sensitivity and specificity of non invasive Systolic blood pressure change (SBP) , Pulse pressure change (PP), heart rate change (HR) with passive leg raise compared against a a gold standard

b) To determine SBP change, PP change, HR change with best cut off

METHODS:

This is a prospective observational study of diagnostic accuracy conducted in the Medical ICU/HDU of CMC Vellore. We included adult patients who were admitted with shock and clinical deemed to require a fluid bolus. We excluded patients who had a contra indication to passive leg raise (PLR) or a poor echo window or persistent arrhythmia. A specially created wedge was constructed for standardising the PLR at 45 degree. The principal investigator then measured various Non invasive oscillometric measurements before and after the passive leg raise. These measurements were compared to stroke volume change, measured before and after a fluid bolus, which was deemed responsive if the change was >= 15 %. The sample size was calculated to include 140 observations with 70 in each arm.

RESULTS:

Out of 176 observations 106 observations were in the responder arm and 70 observations in the non responder arm. ΔMAP change of 3 % co related with a sensitivity of 50 % and specificity of 83 %. AUC of ROC curve was 0.64. ΔSBP had an AUC of 0.636 ,with a change of 2 % co relating with a sensitivity of 48 % and specificity of 75 %. ΔPP change had an AUC of 0.668, with a change of 5 % co relating with 48 % sensitivity and 75 % specificity. ΔHR

had an AUC of 0.771, with a change of 5 % co relating with 97 % sensitivity and 3 % specificity.

CONCLUSIONS:

ΔMAP of 3 % co related with a sensitivity of 50 % and specificity of 83 %. AUC of ROC curve was 0.64.

ΔSBP ,with a change of 2 % co relating with a sensitivity of 48 % and specificity of 75 %. AUC of 0.636

ΔPP with a change of 5 % co relating with 48 % sensitivity and 75 % specificity. AUC of 0.668

ΔHR with a change of 5 % co relating with 97 % sensitivity and 3 % specificity. AUC of 0.771

We found in our study that Non invasive blood pressure measurements were poor predictors of fluid responsiveness as indicated by the ROC mentioned and sensitivity and specificity obtained for the variables studied.

KEYWORDS: NIBP, SHOCK, ΔMAP, STROKE VOLUME